

CLAIMS

1. A canister assembly for a powder paint material delivery and distribution system, comprising:
 - a substantially hollow closed canister body defining a plenum and having a powder paint material inlet formed through a wall thereof for receiving powder paint material from a source;
 - a means for mixing the powder paint material in the plenum; and
 - at least one powder material transfer means for drawing fluidized powder paint material from the plenum.
2. The canister assembly according to claim 1 wherein said at least one powder material transfer means is a venturi pump.
3. The canister assembly according to claim 2 wherein said venturi pump is mounted on an exterior of said canister body and has a pump inlet extending through said wall of said canister body.
4. The canister assembly according to claim 2 wherein said inlet of said venturi pump has an oval shape.
5. The canister assembly according to claim 1 including a plurality of purge air apertures formed through said wall, at least one of said apertures extending along an axis angled with respect to both a longitudinal axis of said canister body and a plane transverse to said longitudinal axis.
6. The canister assembly according to claim 5 wherein said purge air apertures are oriented in different axial directions with respect to a longitudinal axis of said canister body.

7. The canister assembly according to claim 6 including a purge ring mounted on said canister body exterior in fluid communication with said purge air apertures and adapted to be connected to a compressed air source for supplying purge air to the plenum.

8. The canister assembly according to claim 1 wherein said means for mixing the powder material includes a fluidizing plate disposed in said canister body and dividing said canister body plenum into an upper powder paint storage portion and a lower fluidization air plenum, and a fluidizing distribution plate disposed in said canister body intermediate said fluidization plate and a bottom of said canister body plenum, said fluidizing distribution plate having a plurality of holes formed therein for distributing fluidizing air received from a fluidizing air inlet in said bottom of said canister body plenum to a facing surface of said fluidizing plate.

9. The canister assembly according to claim 8 wherein said holes are formed in a circular pattern about a periphery of said fluidizing distribution plate.

10. The canister assembly according to claim 1 including a purge air outlet in fluid communication with the plenum.

11. The canister assembly according to claim 1 wherein said canister body is closed at an upper end by an upper plate having at least one inspection window formed therein.

12. The canister assembly according to claim 11 wherein said upper plate includes a purge air outlet formed therein.

13. A manifold for selectively connecting a plurality of powder material sources to a powder material component, comprising:

at least one modular manifold body having a passage formed therein adapted to be connected to at least one of a downstream modular manifold body, an upstream modular manifold body and a powder material component; and
a pair of pinch valves attached to said manifold body and in fluid communication with said passage, each of said pinch valves adapted to be connected to a separate source of powder paint material and operated selectively between an open mode for powder material flow to said passage and a closed mode blocking powder material flow.

14. The manifold according to claim 13 wherein each said pinch valve has a generally tubular valve body with a collar member rotatably mounted thereon, each said collar member including a fitting adapted to be connected to a source of compressed fluid for operating said pinch valve between an open mode and a closed mode.

15. The manifold according to claim 14 wherein each of said pinch valve includes a membrane member disposed in said valve body and having an exterior surface in fluid communication with a passage formed in said fitting.

16. The manifold according to claim 15 wherein said membrane member is retained in said valve body by a tubular retaining collar surrounding said membrane member, said collar having a flange formed at each end thereof cooperating with a respective lip formed on said membrane member to prevent axial and lateral movement of said membrane member in said valve body.

17. The manifold according to claim 16 wherein said collar includes at least one aperture formed therein in fluid communication with said passage in said fitting, whereby when a compressed fluid is introduced to said passage and flows through said at least one aperture, the compressed fluid deforms the

membrane member, moving said pinch valve assembly from the open mode to the closed mode.

18. The manifold according to claim 14 wherein each said pinch valve body has a first end including a push lock fitting for attachment to an inlet conduit.

19. The manifold according to claim 18 wherein each said pinch valve includes a purging spool attached to a second end of said valve body.

20. The manifold according to claim 13 including another manifold body having a passage formed therein connected in fluid communication with a one end of said passage of said at least one modular manifold body and an end cap connected in fluid communication with an opposite end of said passage of said at least one modular manifold body, said end cap adapted to be connected to a powder material component.

21. A color changer and canister assembly for a powder paint material delivery and distribution system, comprising:

- a substantially hollow canister body having a powder material inlet and a powder material outlet formed in a wall thereof;
- a top plate and a bottom plate enclosing opposite ends of said canister body to define a plenum;
- a color change manifold attached to an exterior surface of said canister body wall, said manifold including a plurality of module bodies each having a pair of pinch valve assemblies adapted to be connected to different sources of powder material;
- a porous fluidization plate disposed in said canister body and separating said plenum into an upper portion and a lower portion, said powder material inlet and outlet being open to said upper portion;

a purge ring attached to said exterior surface of said canister body, said purge ring being in fluid communication with a plurality of apertures extending through said wall into said plenum upper portion for supplying compressed air to purge said plenum of powder material; and

at least one powder material transfer venturi pump attached to said exterior surface of said canister body and having an oval inlet extending into said powder material outlet for drawing powder material from said upper portion.

22. The color changer and canister assembly according to claim 21 wherein each of said manifold bodies has a passage formed therein, said passages being in fluid communication with one another and wherein said manifold includes an end cap connected in fluid communication between said passages and said powder material inlet.

23. The color changer and canister assembly according to claim 21 wherein each said pinch valve assembly has a generally tubular valve body with a collar member rotatably mounted thereon, each said collar member including a fitting adapted to be connected to a source of compressed fluid for operating said pinch valve between an open mode and a closed mode.

24. The color changer and canister assembly according to claim 21 wherein at least one of said pinch valve assemblies is adapted to be releasably attached to the source of powder material.

25. The color changer and canister assembly according to claim 21 wherein said apertures are oriented in different axial directions with respect to a longitudinal axis of said canister body.